

**IN THE UNITED STATES DISTRICT COURT
FOR THE NORTHERN DISTRICT OF ILLINOIS
EASTERN DIVISION**

EAST ST. LOUIS BRANCH NAACP, *et al.*,

Plaintiffs,

v.

ILLINOIS STATE
BOARD OF ELECTIONS, *et al.*,

Defendants.

Civil Action No. 1:21-cv-05512

**Circuit Judge Michael B. Brennan
Chief District Judge Jon E. DeGuilio
District Judge Robert M. Dow, Jr.**

**Three-Judge Court
Pursuant to 28 U.S.C. § 2284(a)**

Rebuttal Report of Dr. Ryan Weichelt

**Professor of Geography
University of Wisconsin-Eau Claire
105 Garfield Ave.
Eau Claire, WI 54701**

Background and Qualifications

I am a Professor of Geography at the University of Wisconsin-Eau Claire (UWEC). I have been employed at UWEC since August 2009 and have also been the Interim Director and Director of the First Year Experiences from May 2017 to August 2020. My formal education includes a B.S. (2000) in Geography from the University of Wisconsin-Eau Claire, a Masters

of Applied Geography (M.A.G., 2002) in Geography from Texas State University, and a Ph.D. (2008) in Geography from the University of Nebraska-Lincoln.

For the past 13 years as a professor in Geography, my primary research and teaching experiences have focused on political/electoral geography with an emphasis in demographics, quantitative methods, and geospatial technologies. Electoral geographers are interested in understanding the spatial nature of elections. This research requires an experienced knowledge regarding political cultures in the United States, EDI (equity, diversity, and inclusivity), demographics, and advanced expertise in geospatial technologies to aid in mapping and analyzing election-based data. In the past 13 years, I have published over twenty articles in journals, book chapters, and edited volumes on the above topics.

Recent articles highlighting these skills include analysis of elections in Wisconsin, examining the patterns and results of Hispanic voters, and analyzing over 2 million land parcels using geospatial technologies of second homeowners. Regarding redistricting, I both edited and contributed to the 2016 Atlas of Elections and was promoted to the Cartographic Editor of the forthcoming 2020 Atlas of Elections. Both editions had sections on redistricting. I also recently published a book chapter discussing the etymology of the many terms used in redistricting and gerrymandering studies. In 2019, I was invited to speak at Harvard at a conference about geography and redistricting, where I discussed the impact gerrymandering has in changing political culture. In 2020, I was awarded a book contract with Rowman and Littlefield to write a book on geography and redistricting. Specifically, this book examines how the overall discipline of geography can aid in understanding redistricting studies. This book is expected to be completed by 2023. Finally, I also published an article titled “Spatial Crime Displacement in

South Chicago,” that analyzed the impacts and disruptions of Black communities in South Chicago following the elimination of Robert Taylor Homes.

As a professor, much of my job is dedicated to teaching. I have been teaching at my current institution for 13 years but have been teaching courses as a graduate student and professional for nearly 20 years. The courses I teach vary from semester to semester, but the courses I most often teach include human geography (the study of human phenomena on the landscape), quantitative methods (statistics), and political geography. In all my upper-level courses, such as political geography, I also teach students to use geospatial technologies, including how to use a Geographic Information System (GIS). In the spring of 2020, I taught Political Geography (GEOG 446) with a special emphasis on redistricting and gerrymandering studies. Students were taught the basics about this topic and then taught how to use a GIS to understand demographics and redistricting themselves. The final project asked students to redistrict the state of Oregon for the House of Representatives with special attention on both federal and state requirements for redistricting in Oregon.

Professionally, I continue to be active by presenting papers and posters at conferences both in the United States and abroad. Beyond research I also hold several leadership roles. Since 2018, I have been the Co-President of Research Council 15 (Cultural and Political Geography) for the International Political Science Association (IPSA). I have recently been elected as the 2nd Vice President of the International Geography Honors Society, Gamma Theta Upsilon (GTU). At my home university, I have been a member of the University Faculty Senate and was recently re-elected to my second 2-year term by my peers to serve on the University Senate’s Executive Committee. In my community I have been serving on a local school district committee, the Demographics and Trends Committee, that examines the changing

demographics of the local school district and the possible impacts these trends will have on enrollments throughout the district. I am often called upon to share my expert opinions on population studies and to utilize my geospatial expertise to analyze population data.

In August of 2020, I testified as a rebuttal witness and was qualified as an expert witness in geography and geospatial technologies for the case *Western Native Voice v. Stapleton*, DA 20- 0394, 2020 Mont. LEXIS 2334 (2020), in the state of Montana. In that case, I was asked to write a report comparing the socio-economic differences between white and Native American populations throughout Montana. Furthermore, I was asked to identify post office locations and then compare the access to post offices by both Native American communities and non-Native communities. This required an extensive geospatial analysis, using a Geographic Information System, identifying the nearest post office and calculating the distance for over three hundred communities throughout Montana.

I have been retained by Plaintiffs in this case and am being paid \$175 an hour for my services in the creation of this report and any other needed duties.

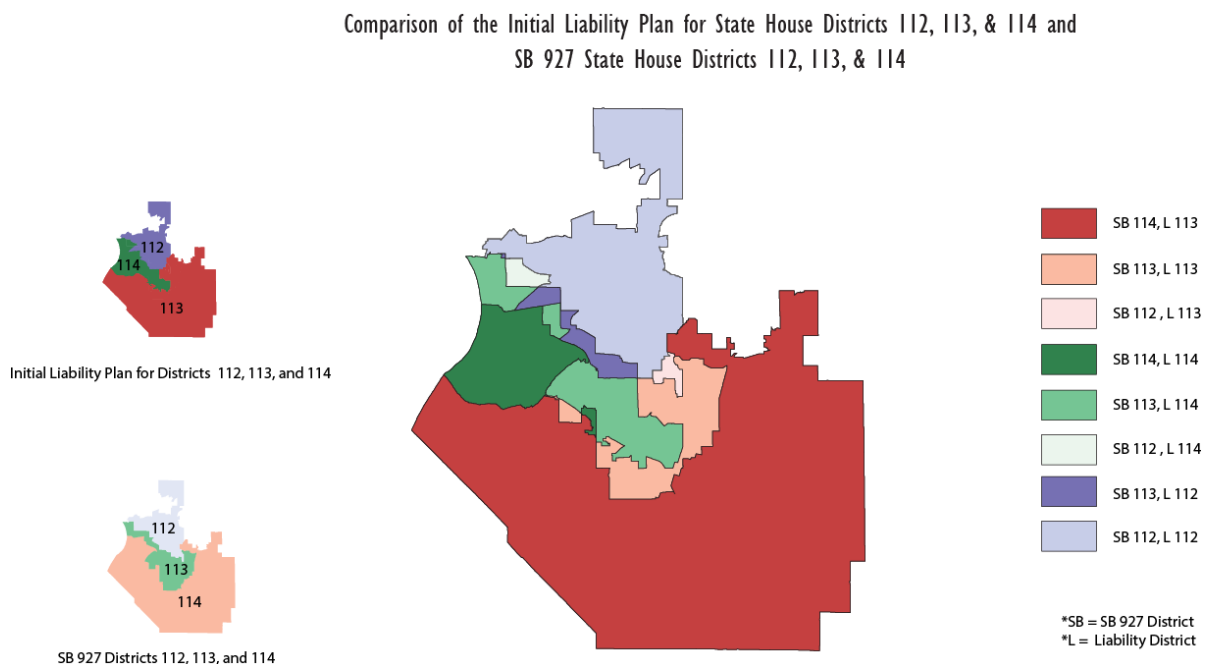
In this rebuttal report, I respond to several points made in the Defendants' brief and declarations.

1. Drawing All Affected Districts in the Section 2 Liability Plan

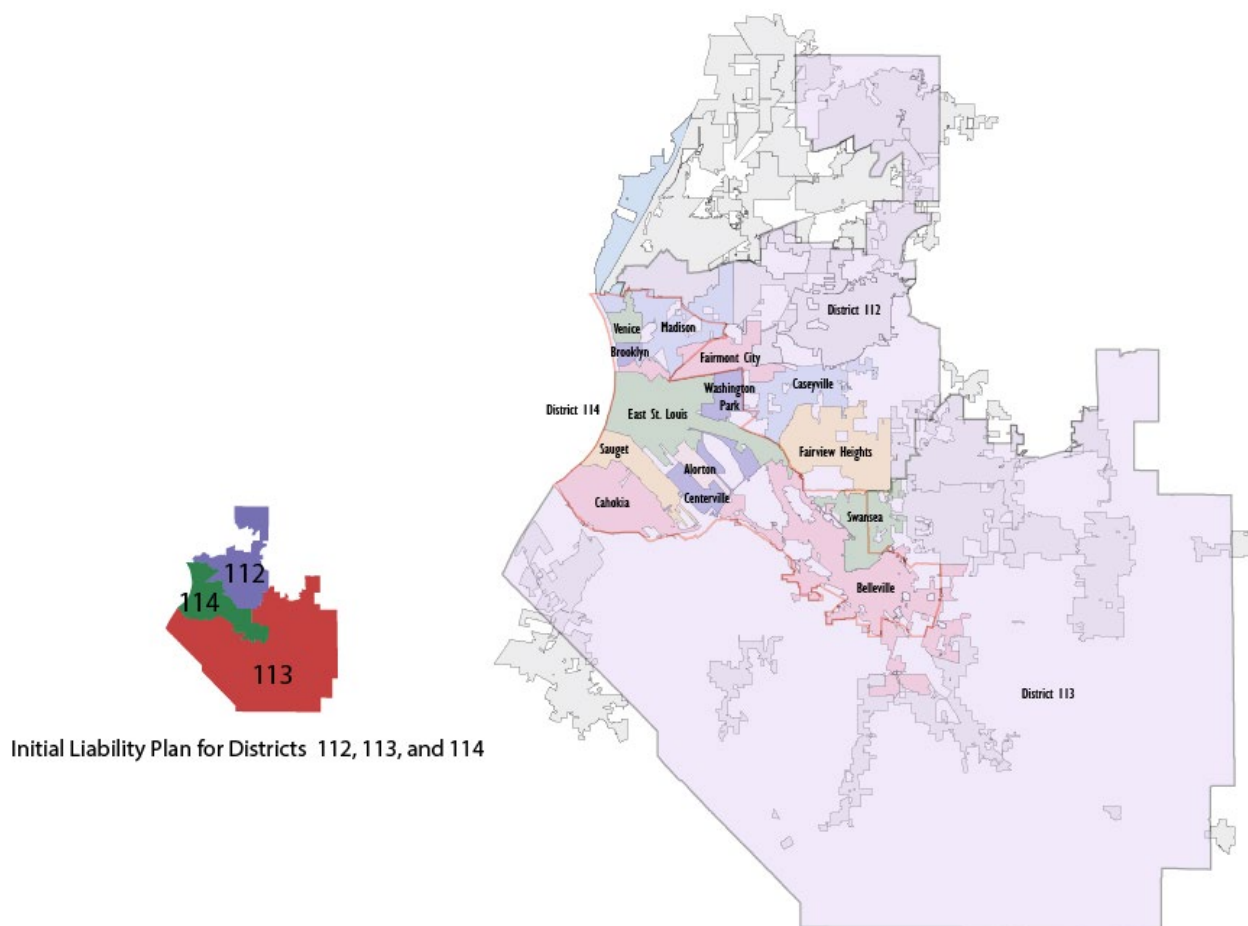
In reference to the liability plan in my initial report, the Defendants state the following on page 35 of their brief:

However, in attempting to meet this burden, the "liability" plan suffers from a fatal flaw: it is incomplete. As drawn, the "liability" plan includes a single district with no districts neighboring it.

Though I do not believe this is a flaw, I have addressed the Defendants' argument by adding the other affected districts to my initial liability plan. Figures 1 and 2 show complete maps for proposed HD112, HD113, and HD114, while Table 1 displays statistics for this liability plan. Figure 1 illustrates the manner by which these districts compare to HD112, HD113, and HD114 as proposed by SB 927. In contrast, Figure 2 illustrates the communities found in the Initial Liability HD114. As can be seen, the Initial Liability plan splits the municipalities of Belleville, Swansea, Fairmont Heights, and Madison, with the majority of Belleville in HD114. In this plan, unlike SB 927's plan, all of Washington Park, a municipality that is over 90% Black, is in HD114. Furthermore, as discussed later in this report, the number of municipalities split by this plan for HD114 are fewer than the number split by HD114 in SB 927. The proposed Liability HD114 is a reasonably compact Minority-Majority district with a Black VAP of 51.45%. As can be seen in both Figures 1 and 2, as well as in Table 1, all three districts also comply with the one-person, one-vote requirements.



Municipalities in Initial Liability District 114



Initial Liability Plan for Districts 112, 113, and 114

Figure 2: Initial Liability Plan, including Municipalities for Proposed HD114 (Source: Place Boundaries as of 2020, ESRI Business Analyst 2021)

<u>Initial Liability Plan</u>	<u>Total Pop</u>	<u>Deviation</u>	<u>Total VAP</u>	<u>Total White VAP</u>	<u>White VAP</u>	<u>Total Black VAP</u>	<u>Black VAP</u>
112	108,241	-340	85,295	61,794	72.45%	12,695	14.88%
113	108,457	-124	82,848	64,288	77.60%	10,749	12.97%
114	108,755	174	83,288	35,112	42.16%	42,905	51.51%

Table 1: District Statistics for the Initial Liability Plan (Source: U.S. Census PL 94-171 and ESRI Redistricting Online 2.36)

Additionally, on page 35 of the Defendants’ brief, the Defendants indicated that Liability District 114 “is non-contiguous in violation of the Illinois Constitution and traditional redistricting principles.” After careful review of the Liability Plan identified in my initial report

as Exhibit 4a and identified in Figure 1, I do not understand the basis for the assertion that Liability HD114 or any other districts identified in my initial report or in this Rebuttal Report are non-contiguous. All figures in my initial report and in this Rebuttal Report clearly illustrate that all districts are contiguous and do not violate any portion of Ill. Const. art. IV, § 3(a).

2. Drawing Alternative Liability and Remedial Plans that Place the Incumbents in HD113 and HD114 in Different Districts

Both the Defendants' brief and a Declaration from current Illinois House Representative LaToya Greenwood expressed concerns that the proposed Liability Plan and the Remedial Plan in my initial report include both Representative Greenwood and current HD113 Representative Jay Hoffman in HD114.

This is easily remedied. I have drawn an Alternate Liability Plan (Figures 3 and 4) and an Alternate Remedial Plan (Figures 5 and 6) that move Representative Hoffman back into HD113. Representative Hoffman's residence is in the Village of Swansea.¹ The Alternate Liability Plan is minimally different compared to the Initial Liability Plan identified in my first report. Representative Hoffman's residence, and the larger neighborhood in which he lives, were close to the border of HD113 and HD114 in my Initial Liability Plan and were moved into HD113 in this Alternate Liability Plan. As can be seen in Figure 4, this Alternate Liability plan splits the municipalities of Belleville, Swansea, Fairmont City, and Madison. The majority of Belleville is in HD114. Unlike SB 927's plan, all of Washington Park, a municipality that is over 90% Black, is in HD114. Furthermore, as discussed later in this report, the number of municipalities split by

¹ The Illinois State Board of Elections website contains a search engine to search candidates' filings. I used the address listed on Rep. Hoffman's filing for purposes of this analysis. See <https://elections.il.gov/ElectionOperations/CandidateDetailEO.aspx?CandidateID=Hfl3QJxQs%2fdeRyzxUx7bfQ%3d%3d&ElectionID=8R2QDecwarl%3d&T=637733646861477193>.

this plan for HD114 is fewer than the number split by HD114 in SB 927.² These minimal changes (see Table 2) increased the Black VAP by 0.24 percentage points and maintain the district as a reasonably compact Black majority district.

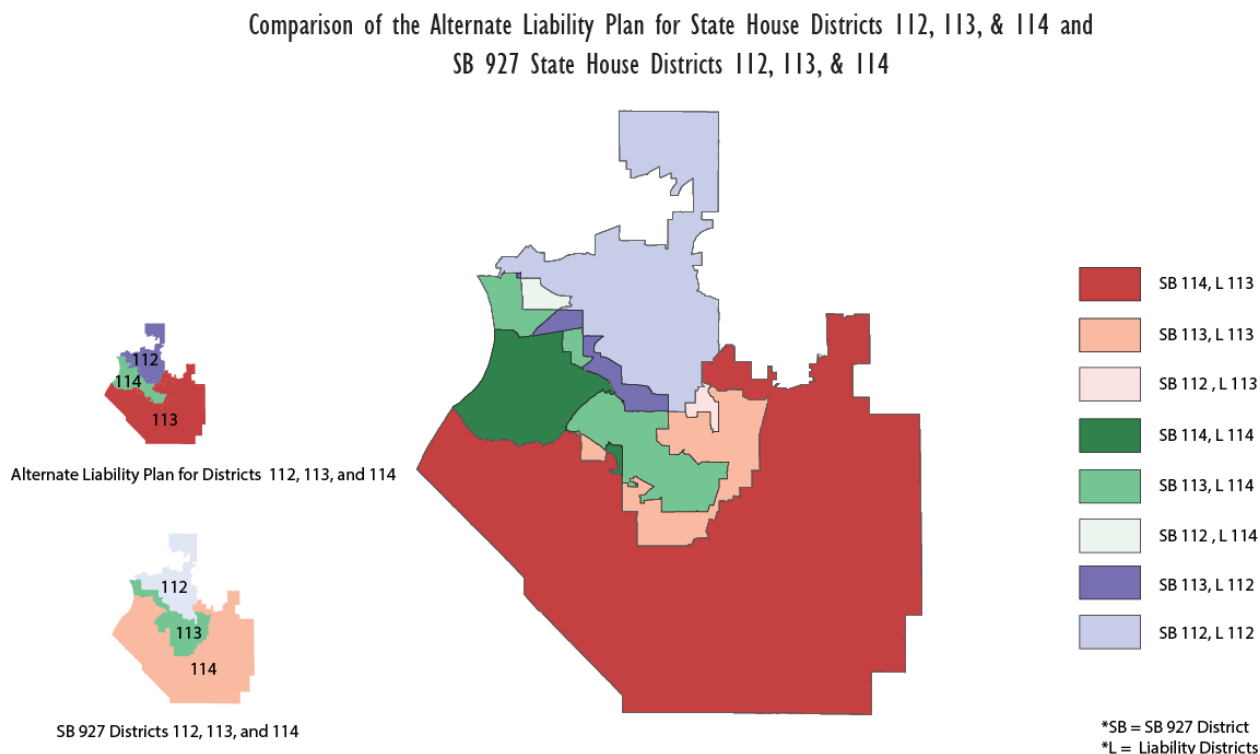


Figure 3: Alternate Liability Plan for Proposed HD114, as well as HD112 and HD113

² Having reviewed the Republican Liability Plan, I see no inherent problem with their plan, but compared to both my Initial Plan and Alternate Liability Plan, these plans split far fewer municipalities than does the Republican Liability Plan. My plans only split 4 municipalities (Belleville, Swansea, Fairmont City, and Madison), while the Republican Liability Plan splits nine municipalities (Belleville, Swansea, O'Fallon, Fairmont City, Fairview Heights, Caseyville, Collinsville, Madison, and Granite City). Also, compared to the Republican Liability Plan, both my initial Remedial Plan and the Alternate Plan B split fewer municipalities, while also addressing the legislative priority of keeping Scott Air Force Base in HD114.

Municipalities in Alternate Liability Plan District 114

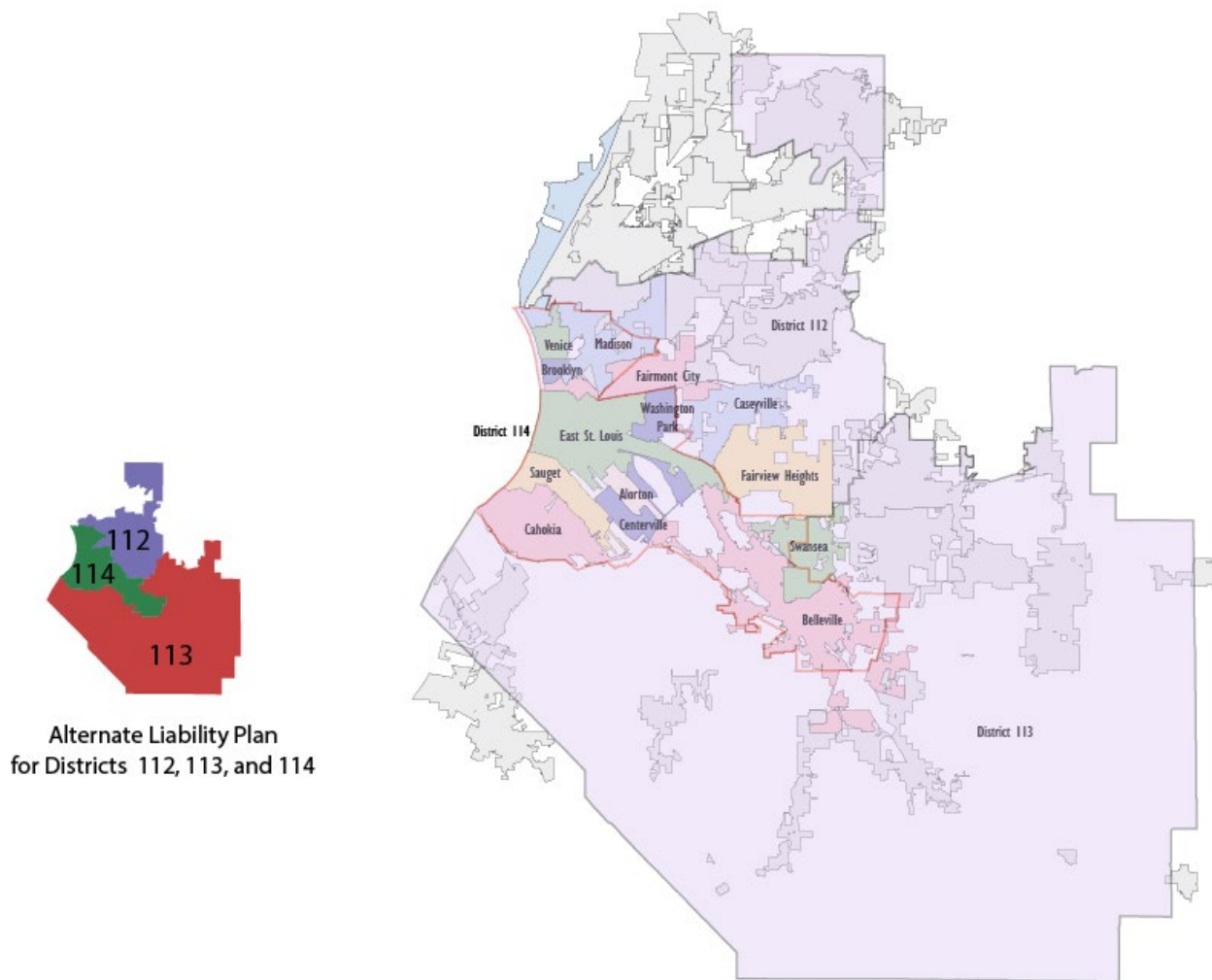


Figure 4: Alternate Liability Plan, including Municipalities for Proposed HD114 (Source: Place Boundaries as of 2020, ESRI Business Analyst 2021)

<u>Alternate Liability Plan</u>	<u>Total Pop</u>	<u>Deviation</u>	<u>Total VAP</u>	<u>Total White VAP</u>	<u>White VAP</u>	<u>Total Black VAP</u>	<u>Black VAP</u>
112	108,241	-340	85,295	61,794	72.45%	12,695	14.88%
113	108,594	13	83,102	64,587	77.72%	10,686	12.86%
114	108,618	37	83,034	34,813	41.93%	42,968	51.75%

Table 2: District Statistics for the Alternate Liability Plan (Source: U.S. Census PL 94-171 and ESRI Redistricting Online 2.36)

The Schwartzberg Test is a perimeter-based measure that compares a simplified version of each district to a circle. For each district, the test computes the ratio of the perimeter of the simplified version of the district to the perimeter of a circle with the same area as the initial district. When comparing similar districts, the higher the number, the more compact the district.

The Perimeter Test computes the sum of the perimeters of all the districts. The test computes one number for the whole plan. When comparing several plans, the plan with the smallest total perimeter is the most compact.³

Table 3 illustrates both the Perimeter Test and the Schwartzberg Test for HD112, HD113, and HD114 compared to the Perimeter Test and Schwartzberg test results for SB 927's districts 112, 113, and 114. As can be seen for the Alternate Liability Plan HD114, both the Perimeter Test and Schwartzberg Test illustrate this district is more compact than SB 927's HD114.

<u>Alternate Liability Plan</u>			<u>SB 927</u>		
<u>District No.</u>	<u>Perimeter</u>	<u>Schwartzberg</u>	<u>District No.</u>	<u>Perimeter</u>	<u>Schwartzberg</u>
112	89.79	2.37	112	91.06	2.45
113	132.4	1.87	113	81.84	2.44
114	72.4	2.19	114	151.09	2.05

Table 3: Perimeter and Schwartzberg Tests for Compactness for the Alternate Liability Plan and SB 927 (Source: ESRI Redistricting Online 2.36)

Figures 5 and 6 provide an Alternate Remedial Plan (Plan B) addressing the concern about placing Representatives Greenwood and Hoffman in HD114. As can be seen in Figures 5 and 6, the newly proposed district places Representative Hoffman in HD113 while maintaining a reasonably compact district. Unlike my plan, which keeps much of the Black population in

³ The Urban and Regional Information Systems Association, *A Primer on Redistricting* (2001), https://www.urisa.org/clientuploads/directory/Documents/Books%20and%20Quick%20Study/primer_on_redistricting.pdf.

Metro East in one district, SB 927 splits Black populations nearly evenly between HD113 and HD114, with HD114 having a Black VAP of 33.55% and HD113 having a Black VAP of 29.70%. This Remedial Plan B maintains a core Black constituency with a Black VAP of 48.12% (see Table 4). Furthermore, Table 5 illustrates the compactness of the districts by identifying the results of a Perimeter Test and a Schwartzberg Test for compactness compared to SB 927. The Alternate Remedial Plan B HD114 has a lower perimeter value and higher Schwartzberg value compared to SB 927's HD114, suggesting that the Plan B district is more compact.

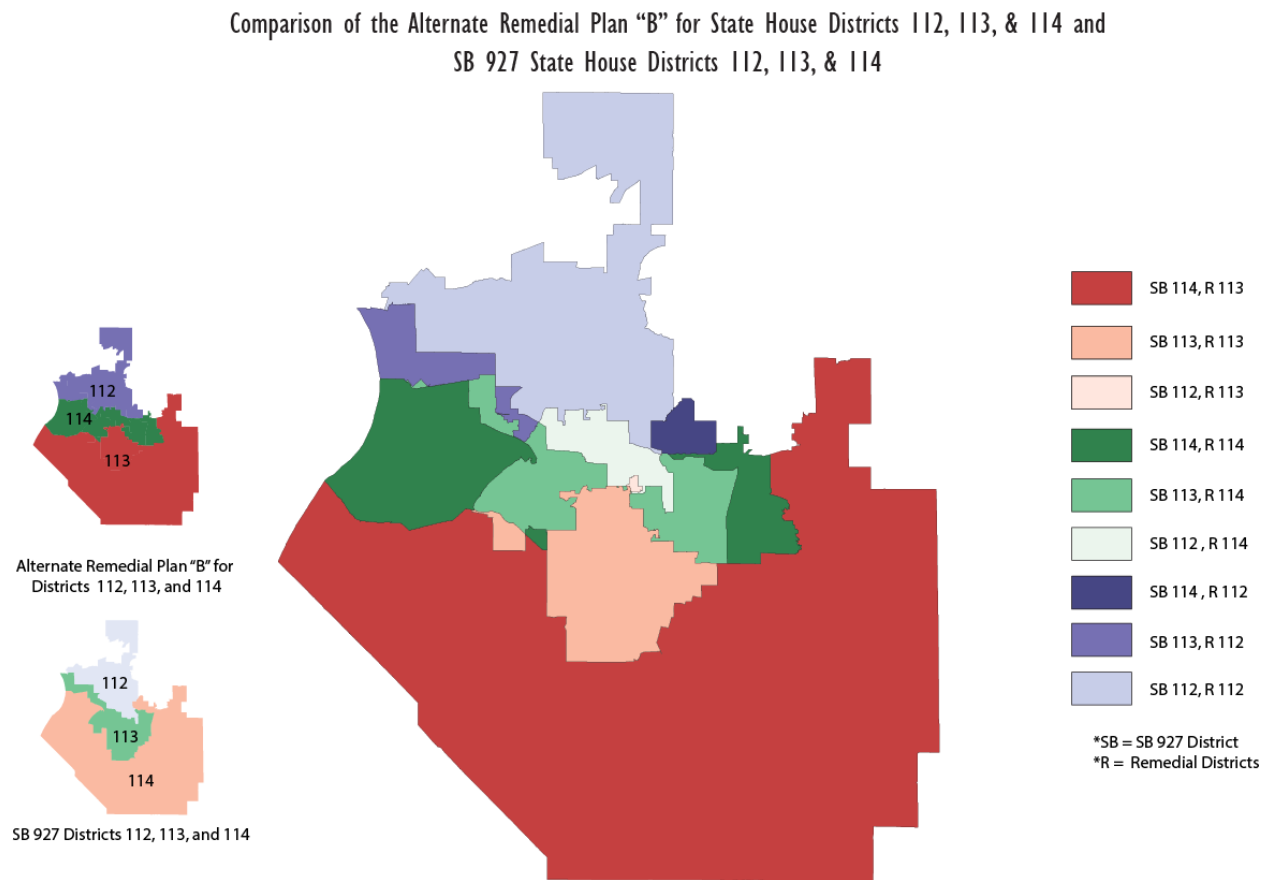


Figure 5: Updated Remedial Plan B for Proposed HD114, as well as HD112 and HD113

Municipalities in Alternate Remedial Plan “B” District 114

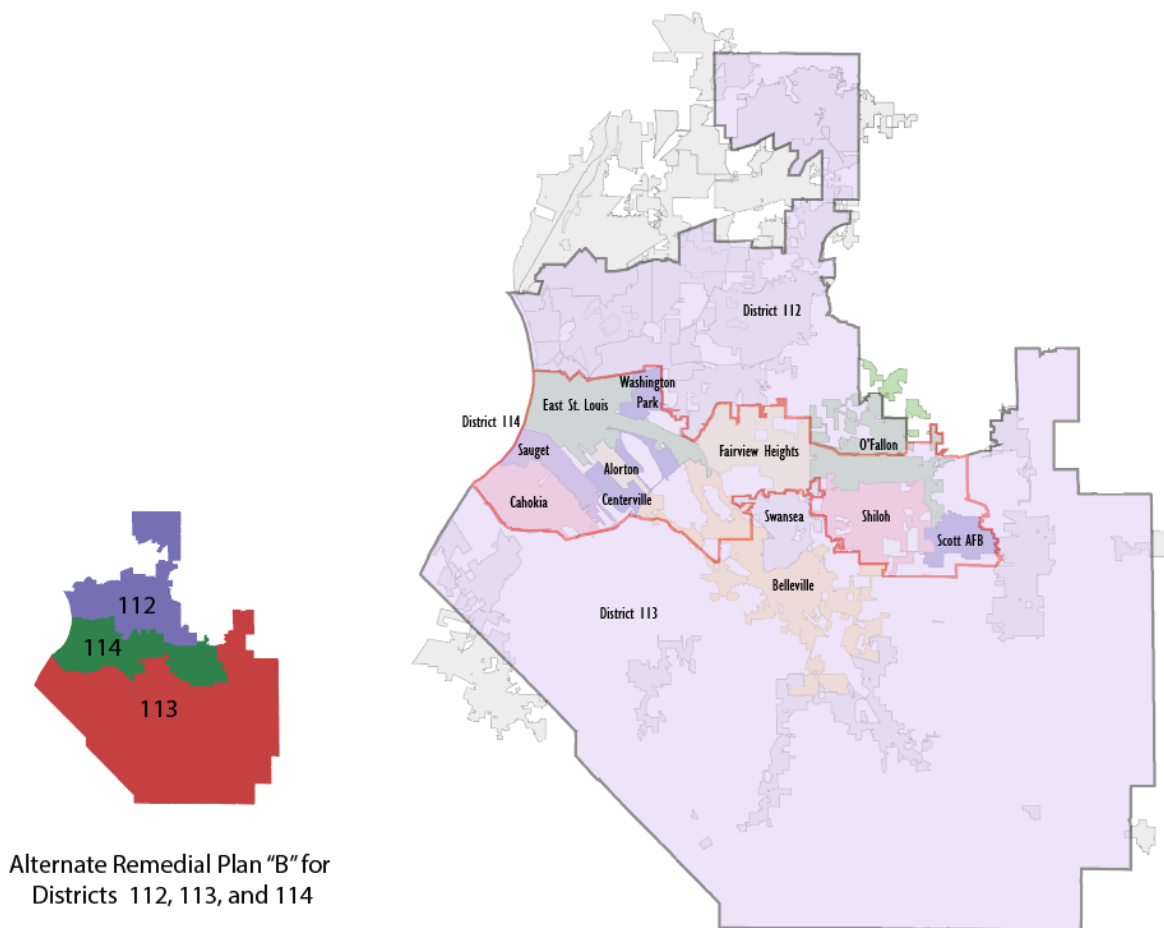


Figure 6: Alternate Remedial Plan B including Municipalities for Proposed HD114
(Source: Place Boundaries as of 2020, ESRI Business Analyst 2021)

Alternate Remedial Plan B	Total Pop	Deviation	Total VAP	Total White VAP	White VAP	Total Black VAP	Black VAP
112	103,350	-231	84,058	61,268	72.89%	12,390	14.74%
113	108,538	-43	84,646	63,680	75.23%	14,157	16.72%
114	108,573	-9	82,724	36,240	43.81%	39,805	48.12%

Table 4: District Statistics for the Alternate Remedial Plan B (Source: U.S. Census PL 94-171 and ESRI Redistricting Online 2.36)

Alternate Remedial Plan B			SB 927		
District No.	Perimeter	Schwartzberg	District No.	Perimeter	Schwartzberg
112	96.08	2.51	112	91.06	2.45
113	127.95	1.77	113	81.84	2.44
114	84.72	2.39	114	151.09	2.05

Table 5: Perimeter and Schwartzberg Tests for Compactness for the Alternate Remedial Plan B and SB 927 (Source: ESRI Redistricting Online 2.36)

In fact, as identified in Figure 5, the Remedial HD114 adheres to most municipalities. Remedial HD114 only splits parts of the city of Belleville and the city of O’Fallon. As seen in Figure 6, SB 927’s HD114 also splits Belleville and O’Fallon but, additionally, splits Washington Park, Smithton Village, and Shiloh.

Though the Defendants criticized my Remedial Plan because it was under 50% Black voting age population, there was no intention to create a 50% Black VAP district with any Remedial Plan. The intention was only that there be sufficient Black population in HD114 to be an effective minority district. When I said in my initial report that my remedial plan “does not meet the Section 2 requirements,” what I meant was that plan would not suffice as a liability plan because it was under 50% Black VAP. I believe both my remedial plans would be effective for Black voters as remedies. I note that HD114 under the 2011 Plan elected Black candidates every time with substantially lower percentages of Black population than in both remedial plans I have drawn.

Municipalities in SB 927 District 114

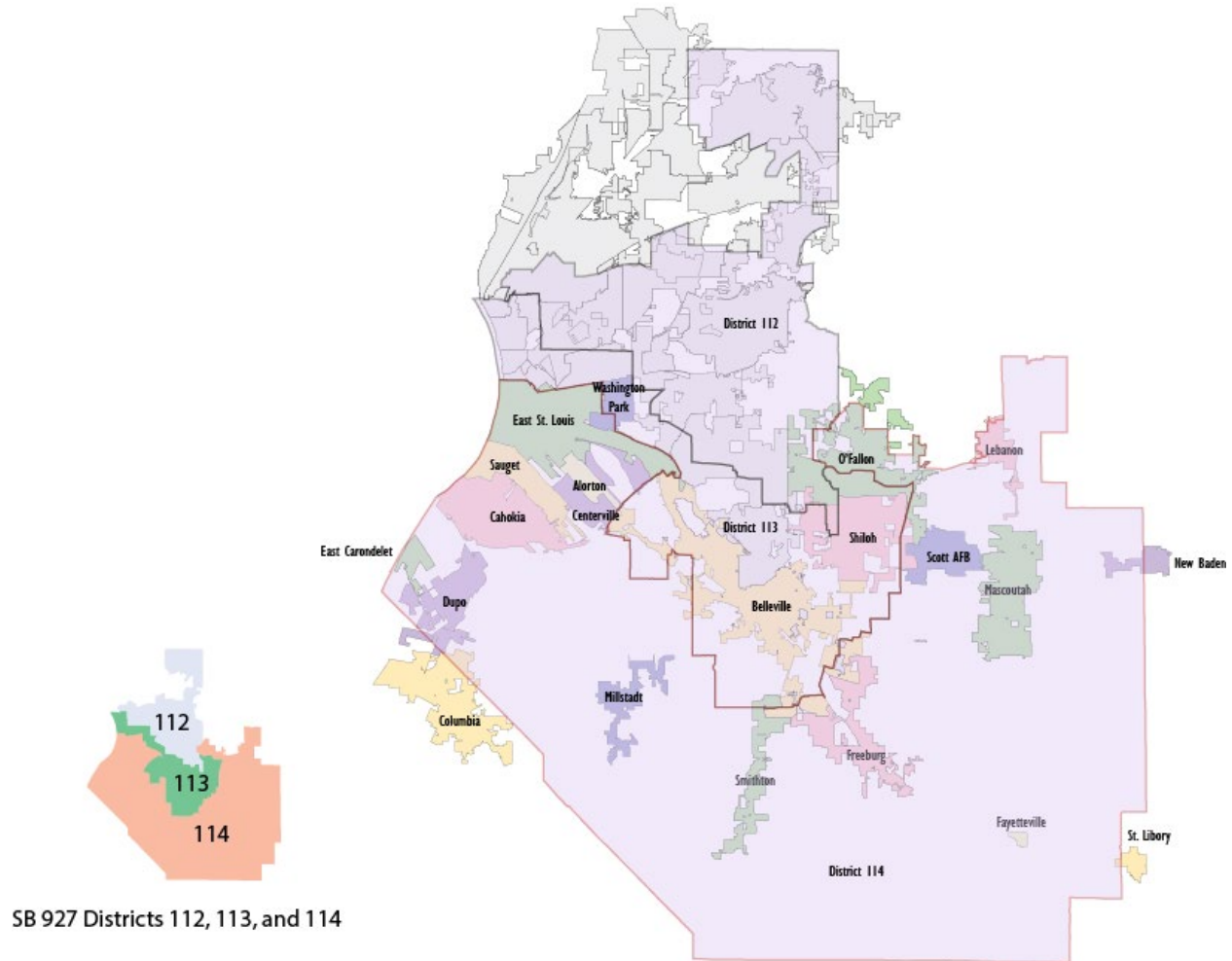


Figure 5: Municipalities in SB 927 District HD114 (Source: Place Boundaries as of 2020, ESRI Business Analyst 2021)

3. East St. Louis Remains the Base of its Own District

I have also responded to another concern expressed by Representative Greenwood:

[The] proposals create a district based on Black voters but do so in ways that will end up hurting the East St. Louis community and the region. The proposals pair East St. Louis with significantly more of Belleville, Fairview Heights, and Swansea, which are larger

cities. This would likely have the effect of ensuring that East St. Louis is no longer the base of its own district.

In both remedial plans, East St. Louis has more population in HD114 than any other city, even though East St. Louis's population can only comprise about 17% of the district's population. In my Alternate Remedial Plan, only about 20% of the population of Belleville (about 8,000 people) is in HD114 and Swansea is entirely excluded. Fairview Heights only has about 16,000 people, which makes it less populated than East St. Louis with merely about 15% of the population of the district.

In my opinion, it is highly unlikely that Fairview Heights would supplant East St. Louis and the majority-Black cities surrounding it as the core of the district. In fact, SB 927's HD114 takes the core of HD114 further away from East St. Louis than in any of my plans and includes predominantly white rural areas instead of the more racially mixed suburban areas in my plans. For example, New Athens, IL, in the far southeastern portion of SB 927's HD114, is 30 miles from East St. Louis. Using the most direct route, this is nearly a forty-minute drive to the center of East St. Louis. In contrast, in my Liability Plan, the farthest away any place is from East St. Louis is about 13 miles (Belleville). In my Remedial Plan, the farthest away any place is from East St. Louis is about 19 miles (Scott Airforce Base). Moreover, as shown below, my proposed districts have equal access to public transportation via buses or light rail that all converge in East St. Louis (see Figure 3 in my Initial Report, also attached as Figure 7 below). In contrast, in SB 927's HD114, there is no public transportation between East St. Louis and much of the rural population.

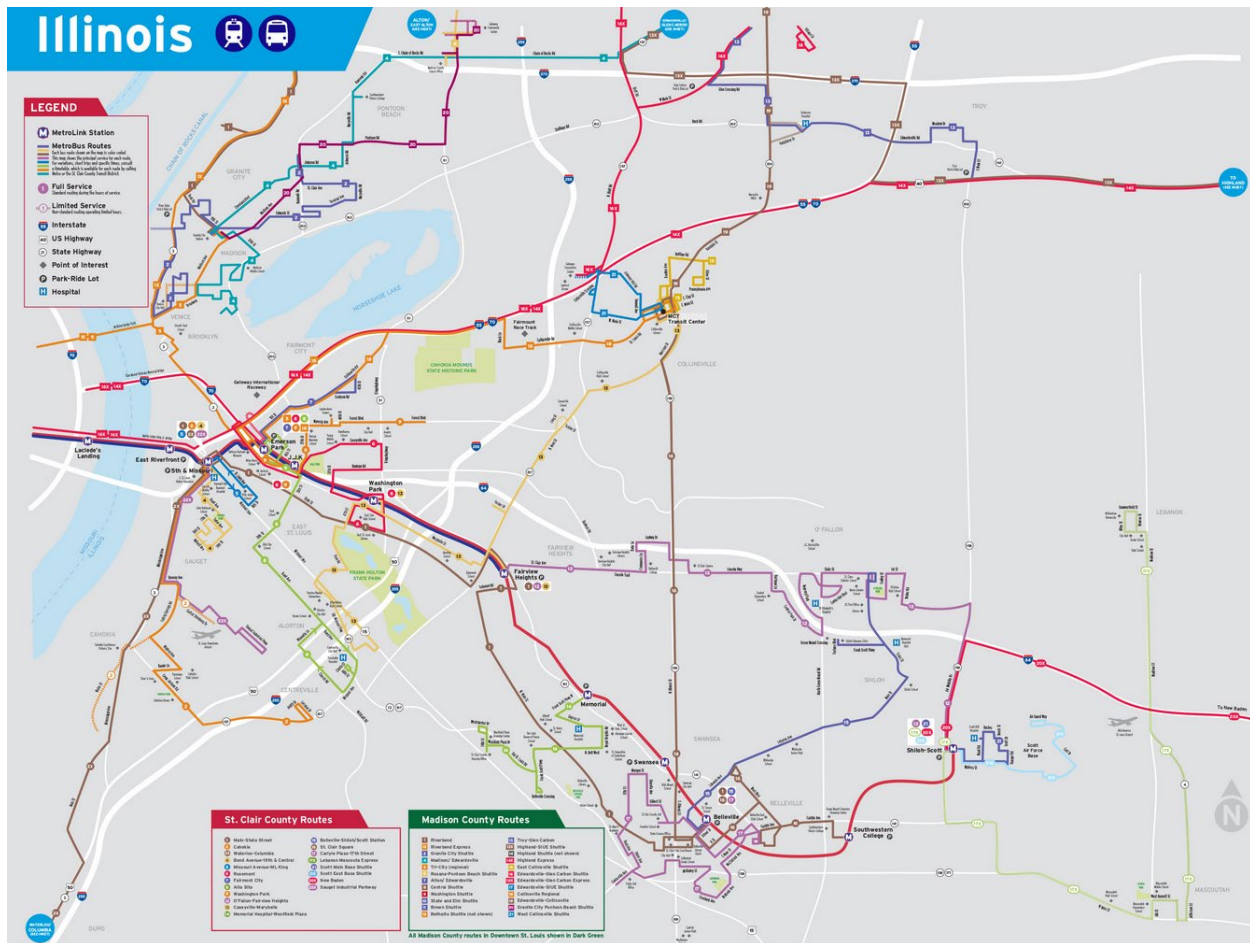


Figure 7: Map of the Public Transportation Routes for the Metro-East Area (Source: <https://www.metrostlouis.org/wp-content/uploads/2019/04/190328-Metro-Illinois-Map-1.jpg>)

On page 198 of his declaration, Defendants' expert Allan Lichtman suggests that the percentage of Black population in SB 927's HD114 is not trending toward decline because of citizen voting age population data in St. Clair County. In fact, as shown in Table 6, the Black population in SB 927's HD114 decreased substantially from the 2010 Census to the 2020 Census (decline in Black total population of 11,321, decline in Black voting age population of 6,028, decline in percent Black total population of 5.99 percentage points, decline in percent Black voting age population of 4.65 percentage points). In contrast, between 2010 and 2020, Black people moved to the areas within the SB 927 version of HD112 (increase in Black total

population of 3,407, increase in Black voting age population of 3,335, increase in percent Black total population of 4.49 percentage points, increase in percent Black voting age population of 4.68 percentage points) and HD113 (increase in Black total population of 3,407, increase in Black voting age population of 3,335, increase in percent black total population of 4.49 percentage points, increase in percent Black voting age population of 4.68 percentage points). If these trends continue over the course of this decade, the Black population in HD114 will continue to grow smaller. Given how the plan drawers reduced the BVAP in HD114 so that it is less than 4 percentage points greater than that in HD113, HD114 could be less Black than HD113 by the end of the decade.

		White Pop.		Black Pop.			White VAP		Black VAP	
2021 SB 927 Districts (2010 Census Data)	Total Pop.	Total	%	Total	%	Total Voting Age Pop. (VAP)	Total	%	Total	%
District 112	104,638	84,196	80.46%	11,694	11.18%	81,303	67,458	82.90%	8,327	10.24%
District 113	113,866	73,311	64.38%	31,030	27.25%	86,911	59,384	68.32%	21,749	25.02%
District 114	120,234	65,776	54.71%	49,087	40.83%	87,004	50,605	58.10%	33,282	38.20%
		White Pop.		Black Pop.			White VAP		Black VAP	
2021 SB 927 Districts (2020 Census Data)	Total Pop.	Total	%	Total	%	Total Voting Age Pop. (VAP)	Total	%	Total	%
District 112	108,585	78,232	72.05%	16,359	15.07%	85,721	63,918	74.57%	12,436	14.51%
District 113	108,491	61,438	56.63%	34,437	31.74%	84,464	51,158	60.57%	25,084	29.70%
District 114	108,370	61,918	57.14%	37,751	34.84%	81,234	48,509	59.72%	27,254	33.55%

Table 6: District Statistics for the SB 927 Between 2010 and 2020 (Source: U.S. Census PL 94-171 and ESRI Redistricting Online 2.36)

I declare under penalty of perjury that the foregoing is true and correct. Executed on November 30, 2021.



Dr. Ryan Weichelt

Appendix A: Redistricting Resources and Methodologies/ Materials Considered

I collected all socioeconomic data comparing Black population and white Population from the United States Census at <https://data.census.gov>. The data was based on the 2019 American Community Survey 5 Year Estimates, 2017 ACS 1 Year Estimates, 2010 PL 94-171 Redistricting Data, and 2020 PL 94-171 Redistricting Data.

I prepared all figures and exhibits using an online geographic information system called ESRI Redistricting Online 2.36.

Data regarding total populations, voting age populations, and race were based on both Census 2010 and 2020 PL 94-171 redistricting data at the census block level provided by the ESRI online redistricting software and downloaded from the United States Census Bureau.

I assigned census blocks to the appropriate precincts and data was aggregated by ESRI Online. The ESRI Online software aggregates and recalculates population data concurrently as blocks are assigned to specific districts. This process provides information about population deviations as well as voting age population data and racial makeup of each district.

The block data and subsequent boundaries used by the ESRI Online software were created by the United Census TIGER (Topologically Integrated Geographic Encoding and Referencing) files. A census block is the smallest geographic tabulation area related to each decennial census. Census block sizes vary in both total population and area depending on population density. Blocks tend to be geographically smaller in urban areas and larger in less populated rural areas. Census blocks tend to be bounded by visible boundaries like streets, rivers, and railroads.

The block-level population data I used are based on the 2010 and 2020 PL 94-171 data files. The PL 94-171 data file is published in electronic format and is the complete count population file designed by the Bureau of the Census for use in legislative redistricting. The file contains basic data on the population for all ages and voting age population found in units of census geography such as states, counties, municipalities, townships, reservations, school districts, census tracts, census block groups, and census blocks.

Finally, when writing this rebuttal report, I considered Dr. Allan Lichtman's expert report, which was Exhibit 1 to the Defendants' brief filed on November 24, 2021.